

We claim:

1. In a multi-tenant call-management system, said system hosting a plurality of processes, including a plurality of tenant application processes and a plurality of system processes, a method of configuring and monitoring said processes on said system, the method comprising:

configuring said system in a configuration file, said configuring including:

grouping selected processes of said plurality of processes into a plurality of tenant groups;

defining dependencies between said plurality of system processes and said plurality of tenant processes;

defining a monitoring frequency for each of said plurality of processes;

defining a priority for each of said plurality of processes; and

reading said configuration file by the call-center system;

starting each of said plurality of processes in said call-center system in correspondence to said dependencies and said priorities; and

monitoring each of said plurality of processes based on said monitoring frequencies.

2. The method as set forth in claim 1, wherein the starting includes:

starting copies of each of said plurality of processes in a secondary call-management system, wherein said call-management system is a duplex system.

3. The method as set forth in claim 2, wherein the configuring further includes:

defining a run status for each of said plurality of processes.

4. The method as set forth in claim 3, wherein the defining a run status includes:

defining selected processes of said plurality of processes as cold-standby run status, wherein one copy of the selected process runs, on one of the duplexed call-monitoring systems while the remaining copy remains stopped or idle on the remaining call-management system;

defining selected processes of said plurality of processes as warm run status, wherein one copy of the selected process runs on one of the duplexed call-monitoring systems while the remaining copy remains runs on the remaining call-management system, however, one of the copies is inactive;

defining selected processes of said plurality of processes as hot run status, wherein both copies of the selected application run, however, with one copy in standby, but with its state kept current with a state of the remaining copy; and

defining selected processes of said plurality of processes as load sharing run status, wherein both copies of the selected process run and actively handle requests, sharing the overall load.

5. The method as set forth in claim 4, wherein each of said duplexed call-management system includes one or more load-sharing nodes, each node hosting selected processes.

6. The method as set forth in claim 5, wherein the monitoring includes:

controlling each of said duplexed call-management systems with a respective HA Server process running on one node of each of said duplexed call-management systems;

monitoring processes on each of said nodes under control of said HA Server process with a respective HA Monitor process running on the same node as said monitored processes, said HA Monitor process broadcasting a respective state of each of said monitored processes to all remaining HA Server processes;

starting and stopping selected processes of said monitored processes with a respective HA Spawner process running on the same node as said monitored processes in response to requests from said HA Server process, said HA Monitor process and an HA Master process; and

watching said HA Server process, said HA Monitor process and said HA Spawner process with an HA Master process running on the same node as the respective HA Server process, HA Monitor process and HA Spawner process, starting and stopping said watched processes in response to states of said watched processes.

7. The method as set forth in claim 6, wherein the monitoring further includes:

watching said HA Master process with an HA Master Watcher process running on the same node as the respective HA Master process, said HA Master Watcher process starting and stopping said watched HA Master process in response to a state of said HA Master Process.

8. The method as set forth in claim 7, wherein the monitoring further includes:

watching said HA Master Watcher process with said HA Master process running on the same node as the respective HA Master Watcher process, said HA Master process starting and stopping said watched HA Master Watcher process in response to a state of said HA Master Watcher process.

9. A multi-tenant call-management system, the system including:  
a storage system for storing database files, processes and configuration files;  
a computer system having memory for processing said database files and said configuration files and running selected processes stored on said storage system;

a system configuration file available to requesting processes, said system configuration file defining inter-process dependencies and process priorities in accordance with a plurality of tenants, each of said plurality of tenants defined in said system configuration file; and

a monitor process for starting configured processes according to said inter-process dependencies and said process priorities as set forth in said configuration file, and for monitoring each of said started processes according to a respective monitor frequency in said system configuration file.

10. The multi-tenant call-management system as set forth in claim 9, wherein the call-management system is a duplexed system further including a second call-management similar to the first call-management system.

11. The multi-tenant call-management system as set forth in claim 10, wherein each of said call-management systems includes one or more nodes for sharing a processing load.

12. The multi-tenant call management system as set forth in claim 11, further including:

an HA Server process running on one node of each of said duplexed call-management systems controlling each of said duplexed call-management systems;

a HA Monitor process running on each of said nodes under control of said HA Server process with said HA Monitor process monitoring processes running on the same node as said HA Monitor process, said HA Monitor process broadcasting a respective state of each of said monitored processes to all remaining HA Servers;

an HA Spawner process starting and stopping selected processes of said monitored processes with a respective HA Spawner process running on the same node as said selected process in response to requests from said HA Server process, said HA Monitor process and an HA Master process; and

an HA Master watching said HA Server process, said HA Monitor process and said HA Spawner process running on the same node as the respective HA Master process, starting and stopping said watched processes in response to states of said watched processes.

13. The multi-tenant call management system as set forth in claim 12, further including:

an HA Master Watcher process watching said HA Master process running on the same node as the respective HA Master Watcher process, said HA Master Watcher process starting and stopping said watched HA Master process in response to a state of said HA Master Process.

14. The multi-tenant call management system as set forth in claim 13, wherein said HA Master process watches said HA Master Watcher process running on the same node as the respective HA Master process, said HA Master process starting and stopping said watched HA Master Watcher process in response to a state of said HA Master Watcher process.

15. A call-center system, the system including:

- a plurality of telephone lines;
- a plurality of agent positions;
- a call distribution system connecting said plurality of agent positions to said plurality of telephone lines; and
- a multi-tenant call-management system connected to the call distribution system, including:
  - a storage system for storing database files, processes and configuration files;
  - a computer system having memory for processing said database files and said configuration files and running selected processes stored on said storage system;
  - a system configuration file available to requesting processes, said system configuration file defining inter-process

dependencies and process priorities in accordance with a plurality of tenants, each of said plurality of tenants defined in said system configuration file; and

a monitor process for starting configured processes according to said inter-process dependencies and said process priorities as set forth in said configuration file, and for monitoring each of said started processes according to a respective monitor frequency in said system configuration file.

16. The call-center system as set forth in claim 15, wherein the call-management system is a duplexed system further including a second call-management similar to the first call-management system.

17. The call-center system as set forth in claim 16, wherein each of said call-management systems includes one or more nodes for sharing a processing load.

18. The call-center system as set forth in claim 17, further including:

an HA Server process running on one node of each of said duplexed call-management systems controlling each of said duplexed call-management systems;

a HA Monitor process running on each of said nodes under control of said HA Server process with said HA Monitor process monitoring processes running on the same node as said HA Monitor process, said HA Monitor process broadcasting a respective state of each of said monitored processes to all HA Servers;

an HA Spawner process starting and stopping selected processes of said monitored processes with a respective HA Spawner process running on the same node as said selected process in response to requests from said HA Server process, said HA Monitor process and an HA Master process; and

an HA Master watching said HA Server process, said HA Monitor process and said HA Spawner process running on the same node as the respective HA Master process, starting and stopping said watched processes in response to states of said watched processes.

19. The call-center system as set forth in claim 18, further including:

an HA Master Watcher process watching said HA Master process running on the same node as the respective HA Master Watcher process, said HA Master Watcher process starting and stopping said watched HA Master process in response to a state of said HA Master Process.

20. The call-center system as set forth in claim 19, wherein said HA Master process watches said HA Master Watcher process running on the same node as the respective HA Master process, said HA Master process starting and stopping said watched HA Master Watcher process in response to a state of said HA Master Watcher process.